

CLAIMS

What is claimed is:

Claim 1. An article of manufacture capable of detecting the presence of a particular toxic substance comprising:

a substrate located on at least a portion of said article;

a biologically active ligand capable of recognizing an epitope of the particular toxic substance on at least a portion of said substrate; and

a biological activity maintaining matrix adapted to immobilize said biologically active ligand upon said substrate;

wherein said ligand is constructed and arranged to produce a visual indicator upon recognition of said toxic substance.

Claim 2. The article of manufacture in accordance with claim 1 wherein:

said substrate is flexible.

Claim 3. The article of manufacture in accordance with claim 1 wherein:

said substrate is releasably secured to said article of manufacture.

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2 Claim 4. The article of manufacture in accordance with
3 claim 1 wherein:

4 said substrate is permanently secured to said article of
5 manufacture.

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7 Claim 5. The article of manufacture in accordance with
8 claim 1 wherein:

9 said substrate is formed integral with said article of
10 manufacture.

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12 Claim 6. The article of manufacture in accordance with
13 claim 1 wherein:

14 said substrate is a polymer film securable to said
15 article.

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17 Claim 7. The article of manufacture in accordance with
18 claim 1 wherein:

19 said biologically active ligand is immobilized in a
20 particular icon shape.

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22 Claim 8. The article of manufacture in accordance with
23 claim 1 wherein:

24 said ligand is selected from the group consisting of an

1 antibody, a single stranded nucleic acid probe, an aptamer, a
2 lipid, a natural receptor, a lectin, a carbohydrate and a
3 protein.
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5 Claim 9. The article of manufacture in accordance with
6 claim 1 further including:

7 a scavenger antibody, which is a particular
8 biologically active ligand characterized as having a higher
9 affinity for the particular toxic substance than said
10 biologically active ligand, said scavenger antibody adapted
11 to be immobilized upon said substrate and present in a
12 sufficient amount to bind with the particular toxic substance
13 up to and including a specific threshold concentration;

14 whereby said biologically active ligand will be
15 prevented from binding with a detector antibody until the
16 concentration of the particular toxic substance surpasses the
17 specific threshold concentration.
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19 Claim 10. The article of manufacture in accordance with
20 claim 1 wherein:

21 the particular toxic substance is at least one member
22 selected from the group consisting of at least one particular
23 microorganism , biological materials containing the genetic
24 characteristics of said at least one particular

1 microorganism, mutations thereof, nucleic acids, proteins,
2 integral components of said at least one particular
3 microorganism and combinations thereof.
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5 Claim 11. The article of manufacture in accordance with
6 claim 1 wherein:

7 said ligand is a chromogenic ligand.
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9 Claim 12. The article of manufacture in accordance with
10 claim 1 wherein:

11 said biological activity maintaining matrix is a water
12 gloss overprint varnish.
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14 Claim 13. The article of manufacture in accordance with
15 claim 1 wherein:

16 said biological activity maintaining matrix is a
17 gelcoat.
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19 Claim 14. A process for detecting the presence of a
20 particular toxic substance on an article of manufacture, said
21 process comprising:

22 securing a substrate;

23 placing a biologically active ligand capable of
24 recognizing and visually indicating contact with an epitope

1 of the particular toxic substance on at least a portion of
2 said substrate;

3 contacting said biologically active ligand with a
4 biological activity maintaining matrix adapted to immobilize
5 said biologically active ligand upon said substrate; and

6 exposing said article of manufacture to the environment;

7 wherein contact with said particular toxic substance
8 results in production of a visual indicator to confirm said
9 contact.

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